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DERWENT-ACC-NO: 2000-166871
DERWENT-WEEK: 200016
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TITLE: Thin-film transistor circuit for active matrix type semiconductor display device - has predetermined number of analog buffer circuits consisting of differential circuits and current mirror circuits, which are connected in parallel

PATENT-ASSIGNEE: SEMICONDUCTOR ENERGY LAB[SEME]

PRIORITY-DATA: 1998JP-0118092 (April 28, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES	MAIN-IPC	
JP 2000022462	January 21, 2000	N/A
019	H03F 003/68	

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APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
JP2000022462A	N/A	1999JP-0048578
February 25, 1999		

INT-CL (IPC): G02F001/136; H01L021/336 ; H01L027/08 ;
H01L029/786 ;
H03F003/45 ; H03F003/68

ABSTRACTED-PUB-NO: JP2000022462A

BASIC-ABSTRACT: NOVELTY - Predetermined number of analog buffer circuits

(A1-An) consisting of differential circuits (B1-Bn) and current mirror circuits

(C1-C3), are connected in parallel. DETAILED DESCRIPTION - An INDEPENDENT

CLAIM is also included for an active matrix type semiconductor display device.

USE - For active matrix type semiconductor display device.

ADVANTAGE - Characteristic variation of analog buffer causing image irregularity of semiconductor display device, can be suppressed.

High-resolution semiconductor display device can be offered. DESCRIPTION OF

DRAWING(S) - The figure shows the circuit component of the analog buffer

circuit. (A1-An) Analog buffer circuits; (B1-Bn)

Differential circuits;

(C1-C3) Current mirror circuits.

CHOSEN-DRAWING: Dwg.1/14

TITLE-TERMS:

THIN FILM TRANSISTOR CIRCUIT ACTIVE MATRIX TYPE

SEMICONDUCTOR DISPLAY DEVICE

PREDETERMINED NUMBER ANALOGUE BUFFER CIRCUIT CONSIST

DIFFERENTIAL CIRCUIT

CURRENT MIRROR CIRCUIT CONNECT PARALLEL

DERWENT-CLASS: P81 U12 U14 U24

EPI-CODES: U12-B03A; U14-K01A2B; U14-K01A3; U24-G02A1;
U24-G02F2;

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: N2000-125365

L Number	Hits	Search Text	DB	Time stamp
1	1979	analog same buffer same parallel	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 13:47
2	25849	analog same buffer same parallel samd (active adj matrix)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 13:47
3	12	analog same buffer same parallel same (active adj matrix)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 13:48

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INT-CL: [07], G09G003/36

US-CL-PUBLISHED: 345/92

US-CL-CURRENT: 345/92

REFERENCE-FIGURES: 1

ABSTRACT:

An active matrix semiconductor device is provided which is free of unevenness in image. The analog switch and buffer in a drive circuit are structured by a plurality of parallel -connected analog switches and buffers each formed by a TFT with a small channel width. The carrier moving direction of these TFTs are oblique relative to a scanning direction of a linear laser used for laser crystallization. By doing so, the analog switch and the buffer are decreased in characteristic variation with deterioration suppressed. Thus an active matrix semiconductor device is realized which is free of unevenness in image.

BRIEF SUMMARY:

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to semiconductor display devices with thin film transistors. More particularly, the

United States

Patent Application Publication

Pub. No. US 2001/0024185 A1

Pub. Date Sep. 27, 2001

SEMICONDUCTOR DISPLAY DEVICE

Invention: Storage Transistor Array (JP)

App. No.: 38997343

Date: May 3, 2001

Related U.S. Application Data

Division of application No. 09/239,443, filed on Nov. 20, 2000, and Pat. No. 6,226,367.

Foreign Application Priority Data

Jan. 21, 2001 (JP) 2001-0024185

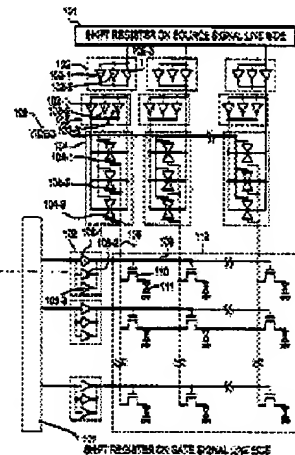
Publication Classification

Int. Cl.⁷ G09G 034

U.S. Cl. 345/92

ABSTRACT

An active matrix semiconductor device is provided which is free of unevenness in image. The analog switch and buffer in a drive circuit are structured by a plurality of parallel-connected analog switches and buffers each formed by a TFT with a small channel width. The carrier moving direction of these TFTs are oblique relative to a scanning direction of a linear laser used for laser crystallization. By doing so, the analog switch and the buffer are decreased in characteristic variation with deterioration suppressed. Thus an active matrix semiconductor device is realized which is free of unevenness in image.



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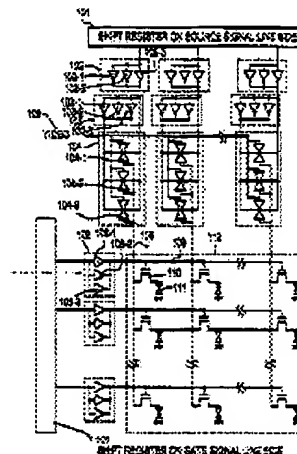
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US 2001 0024185 A1 DOC 73

[0031] It is known that if the TFT active layers are arranged oblique with respect to the linear laser beam scan direction as stated above, the individual TFTs have a characteristic decreased in

(25) DECLASSIFIED BY: 60322 JAL Date of Dec 10, 2002, AUTH: PLS No. 6748-567.





[0049] In the present embodiment, an active matrix liquid crystal display device is explained which has an analog switch directly connected to a source signal line, a last staged buffer for controlling the analog switch, and a buffer directly connected to a gate signal line, wherein each of them is divided into three connected in parallel.

[0050] Reference is now made to FIG. 1. 101 is a shift register provided on a side of source signal lines, 102 is a last staged buffer, 103 is a buffer for creating an inverted signal to a signal from the buffer 102, 104 is an analog switch, 105 is a video signal line, 106 is a source signal line, 107 is a shift register on a side of gate signal lines, 108 is a last staged buffer, 109 is a gate signal line (scan line), 110 is a pixel TFT, and 111 is a liquid crystal. Note that there are only shown, in FIG. 1, the analog switch 104 connected to the source signal line, last staged buffers 102 and 103, and the last staged buffer 108 directly connected to the gate signal line, with other circuits omitted for the sake of explanatory convenience. However, other circuits may be provided as required. The active matrix liquid crystal display device in this embodiment has pixels in number of 640 in horizontal.times.480 in vertical.times.RGB.

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(32) Patent Application Publication (30) Pub. No.: US 2001/0024185 A1
(4) Pub. Date: Sep. 27, 2001

(34) SEMICONDUCTOR DISPLAY DEVICE (35) Foreign Application Priority Data
(36) Invention: Original Transmitted: As applied (37) Jan. 23, 1999 (38) 1542922

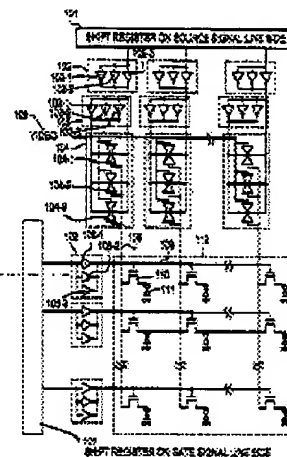
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Publication Classification
(51) Int. Cl.⁷ G09G 3/36
(52) U.S. Cl. 345/12
(53) ABSTRACT

An active matrix semiconductor device is provided which is free of unnecessary transistors. The active matrix and buffer is a drive circuit on a substrate by a plurality of parallel arranged analog switches and buffer units. Each unit is a TFT with a small channel width. The source moving direction of these TFTs on a substrate is a scanning direction of a scan line and is later or published. By using on the active matrix and the buffer are designed in characteristic curves with overdrive suppressed. Thus an active matrix semiconductor device is realized which is free of unnecessary transistors.

(31) Appl. No.: 08/999,343

(32) Filed: May 4, 2001

Related U.S. Application Data
(33) Division of application No. 09/229,443, filed on Nov. 10, 1999, and No. 09/229,447.



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L Number	Hits	Search Text	DB	Time stamp
15	15	"5335023"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 18:39
16	7	"5335023" and buffer	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 18:39
17	2	"5335023" and buffer same parallel	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 18:40
18	2	"5335023" and buffer same parallel and active near5 matrix	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 18:40
-	1979	analog same buffer same parallel	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 13:47
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-	12	analog same buffer same parallel same (active adj matrix)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 18:38